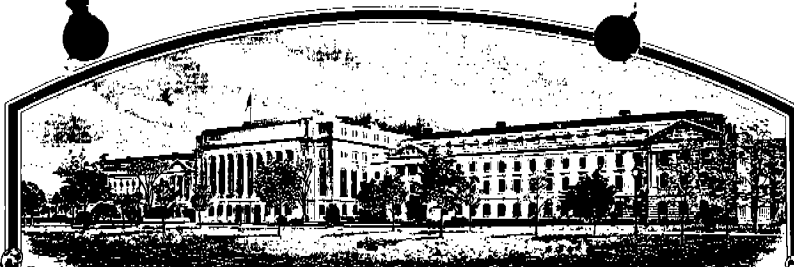


No.



TQ76004

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Alexandria Seed Company, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE  
**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.


NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

RICE

'Melrose'

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington  
this 25th day of January in  
the year of our Lord one thousand nine  
hundred and seventy-nine.

Attest:

  
Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

  
Secretary of Agriculture

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION <b>MELROSE</b> AS1004 (Temporary)	2. KIND NAME <b>Rice</b>	FOR OFFICIAL USE ONLY	
3. GENUS AND SPECIES NAME <b>Oryza Sativa</b>	4. FAMILY NAME (Botanical) <b>Graminae</b>	PV NUMBER <b>TQ 76004</b>	FILING DATE <b>7-1-76</b>
	5. DATE OF DETERMINATION <b>Jan 10, 1976</b> <b>2/21/79</b>	TIME <b>2 P.M.</b>	FEE RECEIVED <b>\$ 250.00</b>
6. NAME OF APPLICANT(S) <b>Alexandria Seed Co., Inc.</b>	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) <b>2510 Broadway</b> <b>Alexandria, Louisiana 71301</b>	BALANCE DUE <b>\$ —</b>	8. TELEPHONE AREA CODE AND NUMBER <b>318-443-2511</b>
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) <b>Corporation</b>	10. STATE OF INCORPORATION <b>Louisiana</b>	11. DATE OF INCORPORATION <b>May 31, 1949</b>	

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

John H. Cade, Jr., President  
P.O. Box 1830  
Alexandria, Louisiana 71301

STAN ROLLIN per letter 7/11/78  
P.O. Box 821  
Beltsville, MD

## 13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Botanical Description of the Variety
- ☒ 13C. Exhibit C, Objective Description of the Variety
- ☒ 13D. Exhibit D, Data Indicative of Novelty
- ☒ 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? (See Section 83(a). (If "Yes," answer 14B. and 14C. below.) ☒ YES ☐ NO14B. Does the applicant(s) specify that this variety be limited as to number of generations? ☒ YES ☐ NO14C. If "Yes," to 14B, how many generations of production beyond breeder seed? **3/10/78**  
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

(DATE)

**JUNE 21, 1976**

(DATE)

(SIGNATURE OF APPLICANT)

ALEXANDRIA SEED CO., INC.

1

John H. Cade, Jr., President

TQ76004

EXHIBIT A, ORIGIN & BREEDING HISTORY - AS1004

1. Pedigree selection from Lacrosse X Zenith.
2. Bulk selection two years and line selection five years. Head to row purification.
3. Variants eliminated. Principle variant in earlier stages was pubescent plant.
4. In 1975, 1000 head selections were planted head to row with no obvious variants. For last four years variety has had consistent performance in yield trials, as compared to check varieties.

## EXHIBIT B, BOTANICAL DESCRIPTION - AS1004

The variety exhibits characteristics typical of commercial medium grain rice in seedling, flowering, and fruiting stages. The mature plant compares most closely with Nato and Saturn. It flowers and matures at about the same time as Nato, about three to four days later in flowering and six to seven days later in maturity than Saturn. AS1004 grows to a plant height about one to two inches shorter than Saturn and about four inches shorter than Nato. At maturity, the height of tillers of AS1004 appears to vary by as much as six inches, while the variation in Nato and Saturn is not as great. This characteristic gives AS1004 a more open appearance, and makes it easily distinguishable from Nato and Saturn. AS1004 has somewhat stronger straw than Nato and considerably stronger straw than Saturn, having consistently shown more resistance to lodging.

## EXHIBIT B

### DATA INDICATIVE OF NOVELTY - MELROSE (AS1004)

Melrose most closely resembles Nova 66 in plant type and appearance. It is approximately the same plant height with approximately the same number of days to heading.

Melrose is different from Nova 66 in several specific respects. They are:

#### DISEASE RESISTANCE

According to Rush, McIlrath, and Hoff, observations in Louisiana, attached, Melrose differs from Nova 66 in reaction to eight of ten major rice diseases as follows:

	<u>MELROSE</u>	<u>NOVA 66</u>
Blast (Race IG-1)	R	MR
Sheath Blight	MR	MR
Stem Rot	VS	MS
Brown Leaf Spot	VS	S
Narrow Brown Leaf Spot	R	MS
Leaf Smut	S	MS
Kernel Smut		S
White Tip		S
Straight Head	MR	MR
Bacterial Blight	MR	S

#### KERNEL SIZE, WEIGHT AND COLOR

In the paddy form, the Melrose kernel is consistently slightly wider and thicker than that of Nova 66. Melrose also appears to have a deeper furrow, which gives the impression of being darker in color although it is not. Under separate cover, we are forwarding samples of Melrose and Nova 66 harvested from yield trial plots planted side by side under identical conditions. The Melrose appears slightly darker, and appears not to harvest quite as cleanly as the Nova 66.

#### LEAF SIZE AND GROWTH HABITS

Melrose has a wider leaf than Nova 66, the leaf flag droops, and the height of tillers of Melrose appears to vary more greatly.

OBJECTIVE DESCRIPTION OF VARIETY  
RICE (ORYZA SATIVA)

REFERENCES: See Reverse.

NAME OF APPLICANT(S)

Alexandria Seed Co., Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

2510 Broadway  
Alexandria, Louisiana 71301

## FOR OFFICIAL USE ONLY

PVPO NUMBER

TQ 76004

VARIETY NAME OR TEMPORARY  
DESIGNATION

MEL ROSE

Temporary: AS1004

JPH  
10/6/76

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g.,  or ) when number is either 99 or less or 9 or less.

## 1. MATURITY (Seeding to 50% Heading):

LOCATION Alexandria, La. AVERAGE DATE SEED May 10Season: 1 = VERY EARLY (85 days or less) 2 = EARLY (86 - 100)  
3 = MIDSEASON (101 - 115) 4 = LATE (115 - or more)

NUMBER OF DAYS

NO. OF DAYS EARLIER THAN ... 

1 = BELLE PATNA 2 = BLUEBELLE 3 = NATO

NO. OF DAYS LATER THAN ..... 

4 = STARBONNET 5 = CALROSE 6 = REXORO

## 2. PLANT HABIT (Tiller Angle from Perpendicular at the Early Jointing Stage):

1 = SPREADING (more than 60°) 2 = INTERMEDIATE 3 = ERECT (less than 30°)

## 3. STEMS (Full Heading):

CM. TALL (Soil level to tip of extended panicle on main culm)

CM. SHORTER THAN ..... 

1 = BELLE PATNA 2 = BLUEBELLE 3 = NATO

CM. TALLER THAN ..... 

4 = STARBONNET 5 = CALROSE 6 = REXORO

NUMBER OF NODES

INTERNODE COLOR (Outside)

1 = LIGHT YELLOW 2 = CREAM 3 = GOLD  
4 = GREEN 5 = REDDISH 6 = LIGHT PURPLE  
7 = PURPLE 8 = DARK PURPLE 9 = OTHER (Specify) \_\_\_\_\_

SEPTUM COLOR (Inside Node)

Tillering Ability (number of culms): 1 = 10 OR LESS (Belle Patna) 2 = 11 - 20 (Bluebonnet) 3 = ABOVE 20 (Century Patna)

Strength: 1 = STURDY (Starbonnet) 2 = INTERMEDIATE (Belle Patna) 3 = WEAK

## 4. LEAF BLADE (First Leaf Below Flag Leaf):

CM. LENGTH

MM. WIDTH

Color: 1 = PALE GREEN (Starbonnet) 2 = MEDIUM GREEN (Bluebelle) 3 = DARK GREEN (Calrose)  
4 = PURPLE 5 = RED 6 = OTHER (Specify) \_\_\_\_\_

Pubescence: 1 = GLABROUS 2 = INTERMEDIATE 3 = PUBESCENT

Flag Leaf Angle: 1 = HORIZONTAL 2 = ASCENDING  
3 = ERECT

CM. LENGTH OF FLAG LEAF (Booting Stage)

MM. WIDTH (widest point) OF FLAG LEAF (Booting Stage)

## 5. LEAF SHEATH (First Leaf Below Flag Leaf):

Ligule Length: 1 = NONE 2 = 20 MM. OR LESS 3 = 21 - 34 MM. 4 = MORE THAN 34 MM.

Color:

SHEATH (Outside)

COLLAR

SHEATH (Inside)

LIGULE

SHEATH (Seedling)

AURICLE

1 = COLORLESS 2 = GREEN 3 = RED

4 = PURPLE 5 = OTHER (Specify) \_\_\_\_\_

1977  
DATA FOR ALEXANDRIA

YIELD, LBS/ACRE  
Experiment Numbers

	302	202	204	102	103	104	106	X
Nato	4380.9	4047.4	4148.0	4651.9	4678.7	3703.6	4202.7	4259.0
Saturn	4540.8	4695.4	3715.6	4552.0	4832.9	2673.8	3957.2	4138.2
Nova 66	4694.3	4922.6	4770.8	5085.2	4718.3	5182.3	5204.9	4939.8
AS1004-2 (MELROSE)	4700.0	5425.7	4776.0	5834.7*	6003.0**	4603.4	5092.8	5205.1

\* LSD05 = 1100 - \*\* LSD01 = 1270

MILLING YIELD/% HEAD/TOTAL

Nato	54.5/73.1	61.5/71.6	56.5/73.8	61.4/73.1	63.9/72.1	56.5/74.0	61.6/73.8	59.4/73.1
Saturn	45.3/71.0	52.0/70.0	52.4/72.4	59.8/72.2	57.5/73.2	51.7/73.6	54.3/73.2	53.3/72.2
Nova 66	44.9/71.4	52.2/69.6	48.7/72.4	61.7/72.8	58.8/72.6	59.2/72.7	53.9/72.2	54.2/72.0
AS1004-2 (MELROSE)	49.1/72.0	55.2/69.8	54.0/72.5	60.2/72.5	57.9/70.8	55.5/73.1	53.1/72.4	55.0/71.9

PLANT HEIGHT (CMS)

Nato	93.3	105.8	91.3	109.8	107.0	96.5	94.3	99.7
Saturn	91.3	103.3	85.3	101.8	97.3	92.8	91.5	94.8
Nova 66	92.0	100.3	88.8	105.0	99.3	90.5	99.3	96.4
AS1004-2 (MELROSE)	90.0	101.0	86.8	104.8	104.5	95.8	89.0	96.0

DAYS TO HEADING

Nato	95.8	96.0	96.0	96.5	96.3	99.8	98.5	97.0
Saturn	91.3	94.5	94.3	93.8	92.0	96.8	95.8	94.1
Nova 66	98.3	98.5	98.3	99.5	102.8	102.3	102.8	100.4
AS1004-2 (MELROSE)	98.0	99.8	99.5	102.0	100.0	100.8	103.5	100.5

PERCENTAGE LODGE

Nato	68.8	52.5	52.5	97.5	39.3	100.0	58.8	67.0
Saturn	100.0	27.5	7.5	92.5	87.3	99.3	96.3	72.9
Nova 66	13.0	2.5	.8	42.5	11.3	71.3	63.8	29.3
AS1004-2 (MELROSE)	3.8	32.0	0	64.8	23.8	86.8	45.0	36.6

Table 1. Reaction of selected U. S. rice varieties to the major diseases occurring in Louisiana.

1977 Report

Variety	Blast- 1/	Sheath blight	Stem rot	Brown		Narrow		Leaf smut	Kernel smut	White tip	Straight head	Bacterial <sup>2/</sup>	
				leaf spot	brown spot	brown leaf spot	leaf spot					leaf blight	leaf blight
<u>Medium-grain</u>													
Brazos	S	MS	MS	MS	R	R	MS	S	MR	MR	MR	S	
Calrose 76	S	MS	MR	S	MR		R	--	--	--	--	(R)	
LA 110	R	MS	S	MS	R	R	R	--	--	--	S	MS	
Nato	S	MS	S	MS	MS	MS	MS	S	S	S	S	S	
Nova 66	MR	MR	(MS)	S	MR		MS	S	S	S	MR	(S)	
Nova 76	R	MS	MS	S	MS	MS	S	MS	--	--	MS	(S)	
Mars	R	MS	MS	MS	R	R	S	MR	R	R	MR	(R)	
Melrose	R	MR	(VS)	VS	R		S	--	--	--	MR	(MR)	
Saturn	R	MS	VS	S	VS	VS	S	MR	S	S	S	S	
Vista	R	MS	MS	MS	MR	MR	MS	MR	S	S	MR	S	
<u>Long-grain</u>													
Bluebell 12	MS	VS	S	MR	S	S	MS	S	R	R	R	VS	
Bonnet 73	R	MS	S	MS	R		MR	S	R	R	MR	S	
Labelle	R	VS	S	MS	MS		MS	S	R	R	R	S	
Lebonnet	R	VS	VS	MR	S		S	S	R	R	MR	S	
Starbonnet	S	S	S	S	S		S	S	R	R	S	S	
Della	S	S	S	MR	S		MS	--	R	R	S	VS	
<u>Short-grain</u>													
Caloro	S	MR	MS	S	R		MS	--	S	MS	MS	MS	
Colusa	S	MS	MS	S	R		R	--	S	S	S	S	
Nortai	MS	MR	MS	MS	R		R	R	R	R	R	MS	

1/ Reactions to race IG-1 (US-3) of *Pyricularia oryzae*. The letter designations for resistance level are R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, and VS = very susceptible. Varieties labeled S or VS for a given disease may be severely damaged under conditions favoring disease development.

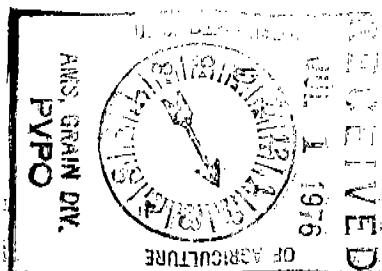
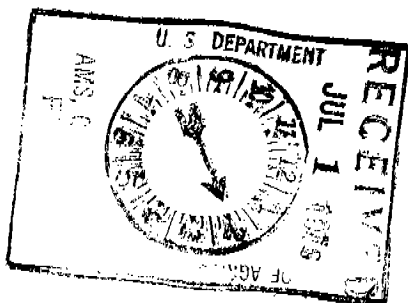
2/ Data from Indonesia or if in parenthesis from Colombia, S.A.

## INSTRUCTIONS

**GENERAL:** Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

## ITEM

- 5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.
- 13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.
- 13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.
- 13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.
- 13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.
- 13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.



Analysis of variance in almost all experiments showed no significance between the test means and test x variety interaction. This would therefore suggest field uniformity as reflected by the coefficients of variation.

#### SUMMARY AND CONCLUSION

The top four leaves of Melrose were significantly longer and wider than the corresponding leaves of Nova 66. The combined leaf area of the top three leaves of Melrose were also significantly larger than Nova 66. Only the top two leaf sheaths of Melrose were longer than Nova 66. Internode lengths of the two varieties were not significantly different.

Based on the data presented, genetic difference does exist between Melrose and Nova 66 as far as leaf length, width, and leaf area were concerned. The difference could possibly be attributed to different number of additive (quantitative) genes present in each variety.

TABLE 1. LENGTH OF FOUR TOP LEAVES (CM) OF TWO RICE VARIETIES AFTER  
FLOWERING STAGE (MEANS OF FOUR REPLICATIONS/TEST)

<u>1A. LEAF NO.1 (FLAG LEAF)</u>						
<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	32.58	35.40	33.95	32.10	33.41	33.47
MELROSE	37.15	40.43	36.66	33.90	36.60	36.95 **
$\bar{X}$ (Test)	34.87	37.92	35.31	33.00	35.01	
<u>L.S.D.</u>			<u>C.V. (%)</u>			
<u>.05</u>			<u>.01</u>			
Test	N.S. <sup>a/</sup>		N.S.		1.32	
Variety	1.43		1.97		1.31	
Test x Variety	N.S.		N.S.			

\*\* Significant at 0.01 level of probability.

<sup>a/</sup> Not significant.

<u>1B. LEAF NO. 2</u>						
<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	40.93	38.41	36.92	42.06	39.51	39.57
MELROSE	44.96	45.72	42.84	46.62	44.60	44.95 **
$\bar{X}$ (Test)	42.95	42.07	39.88	44.34	42.06	
<u>L.S.D.</u>			<u>C.V. (%)</u>			
<u>.05</u>			<u>.01</u>			
Test	N.S.		N.S.		2.12	
Variety	2.22		3.06		1.99	
Text x Variety	N.S.		N.S.			

\*\* Significant at 0.01 level of probability.

1C. LEAF NO. 3

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	40.59	39.63	39.84	41.19	39.23	40.09
MELROSE	43.76	45.70	43.85	44.03	44.70	44.40 **
$\bar{X}$ (Test)	42.18	42.67	41.85	42.61	41.97	

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	10.29
Variety	2.11	2.92	7.46
Text x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

1D. LEAF NO. 4

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	40.16	37.47	41.57	38.86	40.13	39.63
MELROSE	43.66	44.43	42.37	43.13	43.19	43.35 **
$\bar{X}$ (Test)	41.91	40.95	41.97	40.99	41.66	

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	17.19
Variety	1.85	2.56	6.61
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

TABLE 2. WIDTH OF FOUR TOP LEAVES (CM) OF TWO RICE VARIETIES  
AFTER FLOWERING STAGE (MEANS OF FOUR REPLICATIONS/TEST)

2A. LEAF NO. 1 (FLAG LEAF)						
VARIETY	TEST 1	TEST 2	TEST 3	TEST 4	TEST 5	$\bar{X}$ (VARIETY)
NOVA 66	1.97	2.01	1.99	1.72	1.89	1.91
MELROSE	1.95	2.04	2.09	1.93	2.00	1.99 **
$\bar{X}$ (Test)	1.96	2.03	2.04	1.83	1.94	
L.S.D.						
<u>.05</u> <u>.01</u>						
Test	N.S.	N.S.			7.03	
Variety	.0028	.0039			5.62	
Test x Variety	N.S.	N.S.				
C.V. (%)						

\*\* Significant at 0.01 level of probability.

2B. LEAF NO. 2						
VARIETY	TEST 1	TEST 2	TEST 3	TEST 4	TEST 5	$\bar{X}$ (VARIETY)
NOVA 66	1.53	1.56	1.55	1.56	1.59	1.55
MELROSE	1.62	1.74	1.69	1.64	1.73	1.68 **
$\bar{X}$ (Test)	1.58	1.65	1.62	1.60	1.66	
L.S.D.						
<u>.05</u> <u>.01</u>						
Test	N.S.	N.S.			9.56	
Variety	.0020	.0027			6.12	
Test x Variety	N.S.	N.S.				
C.V. (%)						

\*\* Significant at 0.01 level of probability.

2C. LEAF NO. 3

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	1.42	1.46	1.43	1.49	1.51	1.46
MELROSE	1.51	1.59	1.58	1.74	1.59	1.60 **
$\bar{X}$ (Test)	1.47	1.53	1.51	1.62	1.55	

L.S.D.

C.V. (%)

	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	9.24
Variety	.0043	.0059	9.15
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

2D. LEAF NO. 4

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u><math>\bar{X}</math> (VARIETY)</u>
NOVA 66	1.40	1.43	1.47	1.40	1.43	1.42
MELROSE	1.46	1.58	1.63	1.50	1.61	1.55 **
$\bar{X}$ (Test)	1.43	1.51	1.55	1.45	1.52	

L.S.D.

C.V. (%)

	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	11.62
Variety	.0021	.0029	6.70
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

Number of Unfilled Grains. Unfilled grains, were grains without fully developed kernels, regardless of the cause. Melrose was found to have a significantly higher unfilled grains than Nova 66 (Table 12). It should be noted, however, that although Melrose has five more unfilled grains over Nova 66, the former produced 25 more total or a net of 20 more filled grains. It was observed that panicles with more grains produced more unfilled or sterile grains. According to Murata, <sup>6/</sup> the degree of filling grains is determined basically by the ratio between the number of spikelets (grains) and the total amount of carbohydrate accumulated at the time of maturity.

Weight of 1000 Grains. Melrose was 0.96 grams heavier than Nova 66 per 1000-grain weight. This was highly significant at .01 level of probability (Table 13). This difference tends to suggest three possible reasons: First, that Melrose has a larger grain size (length, width, or both); Second, heavier grain per se; and Third, both of the above. It is logical therefore to assume that this difference would be the second most important factor contributing to yield difference.

#### SUMMARY AND CONCLUSION

No significant differences were observed between Melrose and Nova 66 as far as tillering were concerned. Panicle length differences though significant were believed to contribute very little to yield differences between the two varieties.

Heavier panicle weight due to higher total grains and higher number of filled grains produced per panicle was probably the most important single factor contributing to higher yield of Melrose over Nova 66. Although Melrose produced more sterile grains, this was offset by the number of grains it produced. The heavier weight per 1000 grains of Melrose over Nova 66 was believed to be the second most important factor contributing to yield differences. Chandler <sup>7/</sup> stated that grain yield is a function of the number and weight of the grains. Moss <sup>8/</sup> stated that most investigations have shown that number of grain sets was the major factor for yield if not a limiting one.

Based on the data presented, Melrose was genetically higher yielding than Nova 66. This could probably be attributed to different additive gene yield components since its parentals were different from Nova 66. We therefore conclude that Melrose is a genetically distinct variety as compared to Nova 66.

<sup>6/</sup> Murata, Y. 1969. In: Physiological Aspects of Crop Yield. J. Eastin, Ed. Amer. Soc. Agron.

<sup>7/</sup> Chandler, R.F. Plant Morphology and Stand Geomertry in Relation to Nitrogen. IRRI Report, Manila, Philippines.

<sup>8/</sup> Moss, D.N. 1962. Crop Science 2: 366-367

TABLE 10. VALUES FOR TOTAL NUMBER OF GRAINS PER PANICLE  
(FILLED AND UNFILLED)

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u>TEST 6</u>	<u><math>\bar{X}</math> VARIETY</u>
NOVA 66	199.50	237.75	237.75	218.25	216.50	191.25	216.83
MELROSE	214.75	277.25	283.50	231.25	220.50	226.75	242.33**

$\bar{X}$  (Test) 207.13 257.50 260.63 224.75 218.50 209.00

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	25.32	35.01	10.35
Variety	16.19	22.19	11.63
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

TABLE 11. VALUES FOR NUMBER OF FILLED GRAINS PER PANICLE

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u>TEST 6</u>	<u><math>\bar{X}</math> VARIETY</u>
NOVA 66	185.75	204.00	220.50	196.75	185.00	170.00	193.67
MELROSE	195.75	236.25	251.00	204.00	195.50	201.00	213.92*

$\bar{X}$  (Test) 190.75 220.13 235.75 200.38 190.25 185.50

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	19.69	27.23	9.06
Variety	17.78	N.S.	14.38
Test x Variety	N.S.	N.S.	

\* Significant at 0.05 level of probability.

TABLE 12. VALUES FOR NUMBER OF UNFILLED GRAINS PER PANICLE

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u>TEST 6</u>	<u><math>\bar{X}</math> VARIETY</u>
NOVA 66	13.75	34.75	17.50	26.25	21.00	21.50	22.46
MELROSE	21.50	36.00	28.00	27.75	25.00	24.00	27.04**

$\bar{X}$  (Test) 17.63      35.38      22.75      27.00      23.00      22.75

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	25.00
Variety	2.99	4.09	19.92
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

TABLE 13. VALUES FOR AVERAGE WEIGHT (GRAMS) OF 1000 GRAINS

<u>VARIETY</u>	<u>TEST 1</u>	<u>TEST 2</u>	<u>TEST 3</u>	<u>TEST 4</u>	<u>TEST 5</u>	<u>TEST 6</u>	<u><math>\bar{X}</math> VARIETY</u>
NOVA 66	25.37	24.60	25.43	25.29	25.35	25.68	25.29
MELROSE	27.22	25.34	26.35	26.09	26.18	26.34	26.25**

$\bar{X}$  (Test) 26.31      24.97      25.89      25.70      25.77      26.01

	<u>L.S.D.</u>		<u>C.V. (%)</u>
	<u>.05</u>	<u>.01</u>	
Test	N.S.	N.S.	2.95
Variety	0.605	.828	3.88
Test x Variety	N.S.	N.S.	

\*\* Significant at 0.01 level of probability.

## EXHIBIT E - STATEMENT OF APPLICANT'S OWNERSHIP - AS1004

Alexandria Seed Co., Inc., a corporation, is the owner of this plant material, it having been selected and purified by Plant Breeders employed by Alexandria Seed Co. for that purpose. The Plant Breeders involved were B. S. Barnes, who did most of the breeding and purification, and Alfonso Calub. Barnes is now Vice-President for Export Division, and Calub is Director of Research. Alexandria Seed's rice breeding program began with crosses made by Barnes in 1961.

RICE

PV No. 7605008

'Melrose'

An excess seed sample of this variety was returned to the PVP Office by the National Seed Storage Laboratory. The excess seed was destroyed by PVPO personnel on NOV 14 1994

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1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

18 sheets

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